Tubal Twin Pregnancy Following IVF-ET: Case Report

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We report a rare case of tubal twin pregnancy after in vitro fertilization and embryo transfer (IVF-ET) cycle at diagnosis before operation and two sacs were found to be located on the ovarian surface during laparoscopy. A 35-year old lady was admitted to the emergency unit with pelvic pain and was diagnosed with left tubal twin pregnancy with fetal cardiac activities 35 days after IVF-ET. Emergency laparoscopy was performed that showed the presence of two sacs were located on the left ovary, possibly, due to tubal abortion. Gestational sacs were extirpated by laparoscopy without damaging the ovary. Tubal twin ectopic pregnancy after IVF-ET is a rare condition that could be ended with tubal abortion and successfully managed conservatively by laparoscopic approach.

Key Words: Twin pregnancy, Tubal pregnancy, Tubal abortion, In vitro fertilization

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Introduction

Ectopic pregnancies constitute 1-2% of all pregnancies among natural conceptions and more than 95 % of them implant in the Fallopian tube that also complicates infertility treatment.[1] Ectopic pregnancy rate is 2.1% of clinical pregnancies regardless of assisted reproductive technology (ART).[2] Since the first in vitro fertilization (IVF) treatment ended with tubal pregnancy[3] the aetiology of this situation is still unknown. The incidence of developing spontaneous unilateral tubal twin pregnancy is 1 in every 125.000 pregnancies.[4] The current literature regarding unilateral tubal twin pregnancy is mostly related with natural cycles and only several cases following ART cycles have been reported.[5]

The aetiology of the implantation of the embryos of IVF into the Fallopian tube rather than the endometrial cavity is still an area of research. Tubal obstruction due to infection, previous surgery or endometriosis is the attributable risk factors regarding spontaneous ectopic pregnancies. Direct injection of embryos into the tubes, reflux expulsion of the embryos into the tubes by uterine contractions, transferring 3 or more embryos and zygote intrafallopian transfer procedure are the proposed risk factors related with the ART technique itself leading to ectopic pregnancy development.[2] Other suggested risk factors that could probably increase the risk for tubal pregnancy following IVF related with the woman herself include history of genital infection, history of tubal surgery, smoking status, age, previous abortions (spontaneous or elective), intrauterine device history, previous infertility, ectopic pregnancy history and endometriosis.[6]

The consequence of tubal ectopic pregnancy may be regression with spontaneous resorption or distention of the tubal wall leading to devastating tubal rupture, which can cause life-threatening haemorrhage and maternal morbidity and mortality. Moreover, tubal pregnancy may completely detach from the tubal wall and expel before the rupture of the tube leading to tubal abortion and haemorrhage into the abdominal cavity occurs. Besides, secondary ovarian implantation may be formed, which is extremely rare.[7]

Case Report

A 35-year-old primigravida lady presented with vaginal bleeding and pelvic pain 35 days after in vitro fertilization and embryo transfer (IVF-ET) that was carried out due to mild male infertility in an IVF unit. Overall, two embryos were transferred. She was married for four years and was nulligravid. She had ceased smoking after her serum beta-human chorionic gonadotropin (β-hCG) was positive. She had no history of pelvic inflammatory disease and her tubes were found to be normal on hysterosalpingography for infertility diagnosis workup. Her previous serum β-hCG was 2190 mIU/ml with a suspicious gestational sac image obtained 10 days previously. Her pelvic examination revealed pain in the left pelvic region with uterine spotting. Her serum β-hCG was 16,070 mIU/ml. Transvaginal ultrasonography revealed hemoperitoneum, a thickened endometrium without a gestational sac and two gestational sacs including embryonic poles with fetal cardiac activities (143 and 130 beats per minute, respectively) in the left adnexa (Figure 1).

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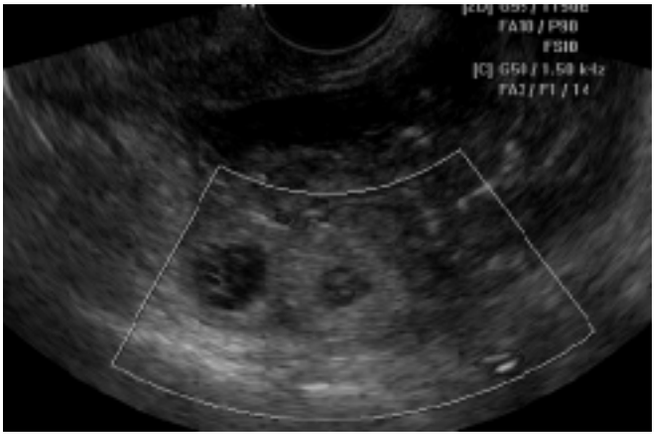

Figure 1: Transvaginal Doppler view of two gestational sacs in the ovary

Based on the IVF history, clinical appearance, serum β-hCG level and transvaginal ultrasonography findings the diagnosis of ectopic twin tubal pregnancy was made, and an emergency laparoscopy was performed. During the laparoscopy, two gestational sacs were detected on the left ovarian surface instead of the left tube (Figure 2).

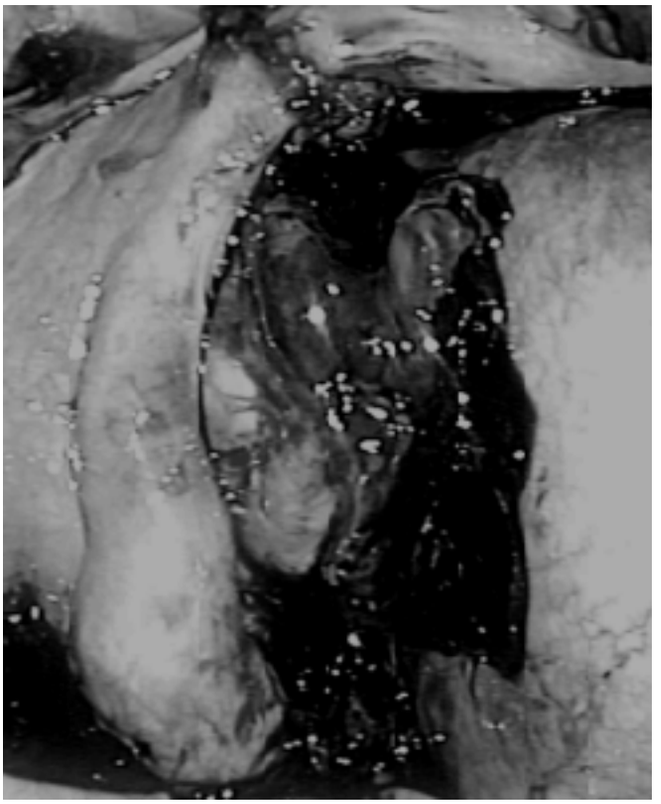

Figure 2: Laparoscopic view of two gestational sacs on the ovarian surface after tubal abortion

A secondary ovarian implantation due to tubal abortion was diagnosed. Right adnexa appeared normal and haemorrhagic fluid was almost filled the pouch of Douglas. The gestational sacs were extirpated by laparoscopic bipolar coagulation. There was no further bleeding from the ovary and from the left Fallopian tube. A 400 ml of haemorrhagic fluid was aspirated from the pouch of Douglas and the abdomen. Careful cleaning of the abdomen and the pelvis was done. Postoperative follow-up was uneventful, and she was discharged on the postoperative day 1.

Discussion

Ectopic pregnancy is an important complication of ART. It is still unclear why IVF embryos lose their direction to the endometrium and settle into the Fallopian tube. The technique, the number of embryos transferred and the low-quality embryos have been reported to increase the risk. The altered endocrine milieu due to controlled ovarian stimulation and previous tubal damage has been proposed as risk factors. However, no satisfactory remarks have been made related with this issue.[8] In the present case of tubal twin pregnancy following, IVF-ET due to primary infertility and mild male infertility the additional risk factors for tubal ectopic pregnancy include woman's age (35 years old), smoking history and most probably the ART itself.

Although rare, there are case reports of unilateral tubal twin pregnancy following IVF-ET in the literature.[5] It is a very surprising and rare condition for the obstetrician to come across two gestational sacs on the left ovarian surface as a result of tubal abortion during performing laparoscopy with the preoperative diagnosing of a twin tubal pregnancy due to ultrasound findings. The diagnosis of primary ovarian pregnancy should fulfil the four criteria previously outlined by Spiegelberg:[9] (i) the Fallopian tube with its fimbriae should be intact and separate from the ovary; (ii) the gestational sac should occupy the normal position of the ovary; (iii) the gestational sac should be connected to the uterus by the uterine ovarian ligament; and (iv) ovarian tissue must be present in the specimen attached to the gestational sac. In the present case, no ovarian tissue was detected around the gestational sacs histologically, and the diagnosis of tubal twin pregnancy was confirmed.

In the presence of two gestational sacs with fetal cardiac activities, serum β-hCG level >10.000 mIU/ml and acute pelvic pain emergency laparoscopy was favoured rather than medical treatment, which is the most cost- effective treatment method for tubal ectopic pregnancy.[10] During the laparoscopy when tubal abortion was detected, a conservative laparoscopic approach was carried out. The gestational sacs were extirpated from the ovarian surface, and haemorrhagic fluid was aspirated leaving no trophoblastic implants and preventing the risk of possible postoperative adhesions. The tube was left in situ and structurally consistent. In our case, conservative laparoscopic approach does not seem to worsen the future fertility

needs, and moreover, salpingectomy does not solely eliminate the risk of ectopic pregnancy.[6]

In conclusion, it is important to keep in mind and to recognize the possibility of developing an ectopic pregnancy after IVF-ET. Tubal pregnancies whether single or twin, may progress to tubal abortion and may appear as ovarian or abdominal pregnancy. Before encountering such a situation and in order to make a proper diagnosis close follow-up of IVF patients with serum β-hCG and progesterone levels in addition to performing transvaginal ultrasound is mandatory for early diagnosis during asymptomatic state. Additionally, our case demonstrates that conservative laparoscopic approach may be the treatment of choice in such cases.

Declaration of interest: The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the paper.

IVF-ET Sonrası Tubal İkiz Gebelik: Olgu Sunumu

İn vitro fertilizasyon embriyo transferi (IVF-ET) siklusu sonrası tubal ikiz gebelik tanısı alan ve laparoskopi sırasında her iki gebelik kesesinin over yüzeyinde izlendiği olgunun sunulması. Acil servise pelvik ağrı şikayeti nedeniyle başvuran 35 yaşındaki bayan hastada IVF-ET' den 35 gün sonra fetal kardiak aktiviteleri izlenen sol tubal ikiz gebelik tanısı kondu. Acil laparoskopi işlemi sırasında, her iki gebelik kesesinin tubal aborta bağlı olarak sol over yüzeyinde olduğu izlendi. Her iki gebelik kesesi overde herhangi bir zarara neden olmadan laparoskopik olarak çıkartıldı. İn vitro fertilizasyon embriyo transferi sonrası tubal ikiz ektopik gebelik nadir bir durum olmakla birlikte tubal abortla sonlanabilir ve laparoskopik konservatif yaklaşımla yönetilebilir.

Anahtar Kelimeler: İkiz gebelik, Tubal gebelik, Tubal abortus, İn vitro fertilizasyon

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